



# FLORIDA STATE UNIVERSITY Environmental Health and Safety GUARDIAN

Volume 6 Issue 1

First Quarter 2000

Also in this issue...

Highlights of the 20 <sup>th</sup> Century	2
Work Related Injuries	2
Electrical Do's and Don'ts	3
In the news...	4
Did you know, historical facts	4

## FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION VISITS CAMPUS



Recently inspectors visited Florida State University from the Florida Department of Environmental Protection (FDEP). This visit was a follow-up to the December Compliance Assist Visit. The results from the visit were good. There were no violations identified, but there were several recommendations identified to improve overall campus performance. Some of the items identified for improvements are:

- Increase training and awareness of hazardous materials and handling requirements
- Improve collection/control of aerosol cans
- Increase awareness of container controls (labeling, closure, disposal)
- Identify spill control measures

All involved parties should take a minute to review what they have done to meet the requirements so that we can continue to push towards the future, meeting our goals of

GUARDIAN, is published quarterly by The Florida State University- Department of Environmental Health and Safety, 105 Mendenhall Maintenance Building "A" Tallahassee, FL 32306-4154 (850) 644-6895 Fax (850) 644-8842

Director  
Fran Harley  
fharley@admin.fsu.edu

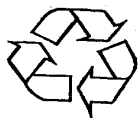
Editor  
Tom Jacobson  
tjacobson@admin.fsu.edu

Contributors:  
Paul Burress  
Lori Hales  
Renee Murray

Heading Design  
Richard N. Le

GUARDIAN is available on the internet at <http://www.fsu.edu/~safety/guardian>

GUARDIAN is printed on recycled paper. Please recycle this newsletter when finished.



## THE REALITY OF RADIATION EXPOSURE

We seem to learn at a very young age to fear and avoid anything that is marked "radioactive" or that emits radiation. Sure, many folks find it humorous to see symbols or inferences used in comics, cartoons, posted on dormitory room, or office doors. But, put a label on something that looks legitimate and it will cause real concern, as well as effectively warding off most potential trespassers. Radiation can hurt us, we know this. We know what happened in Hiroshima and Nagasaki, we may have witnessed the side effects of radiation therapy for cancer treatments (especially with the older treatment methods), and can imagine potential consequences such as cancer. We are probably even a bit apprehensive when receiving medical and dental diagnostic x-rays.



### How can we be blamed?

Usually, when we are told about a radiation exposure in the media, it is referenced to a "standard chest x-ray" and then, when you ask about the dose that you will receive during your "standard chest x-ray", you seem to get only cryptic or inconclusive answers. The Dentist's office puts you in a lead apron in order to x-ray your teeth while the hospital makes you remove your clothing or get in a gown to get an x-ray without shielding any other part of your body. CAT (computerized axial tomography) scans are not advertised as x-ray procedures even though the dose is about 100 times greater than for a single conventional x-ray.

These things seem to be based more on public relations and perception than good, or at See Radiation, page 3

## HIGHLIGHTS OF THE 20<sup>TH</sup> CENTURY CENSUS CHANGES 1900 TO PRESENT

The 20th-century has been a time of rapid change for the United States. The Commerce Department's Census Bureau publishes a compendium, now in its 119<sup>th</sup> edition. The 1999 compendium traces the changes that have occurred this century. The statistics trace a picture of rapid change for this country through the course of the 20<sup>th</sup> century. Some of the statistics are truly amazing and demonstrate the dynamics of this last century which has just drawn to a close.

### Highlights:

- \* In 1900 11% of all 14 to 17 year olds were enrolled in high school. In 1997 93% were enrolled in high school.
- \* Life expectancy in 1900 was 46 years for men and 48 for women. In 1997 the life expectancy had increased to 74 years for men and 79 years for women.



### Work Related Injuries

The Staff of Risk Management would like to provide the data on work related injuries that occur on campus to university employees. This information is gathered when an employee files an injury claim with our office. It is hoped that by providing these statistics to our readers, you will be more conscious of injuries at the work place. Accidents are a real and common occurrence at the work place. By being aware of the potential of injuries, one may be able to avoid a potential accident.

#### Reported Injuries, October to December 1999

Description	Number of Claims
<b>Strains or Injuries</b>	
Lifting	4
Pushing/Pulling	1
Miscellaneous	6
<b>Struck or Injured by</b>	
Falling or flying objects	1
Lifting/handling objects	1
Miscellaneous	5
<b>Falls or Slips from</b>	
Fall from same level	9
Slip did not fall	2
Different level	4
Ladder or scaffold	1
<b>Burns or exposures</b>	2
<b>Cut, punctures or scrape</b>	6
<b>Striking against an object</b>	2
<b>Miscellaneous</b>	7
<b>Total number of claims</b>	<b>51</b>

- \* From 1900 to 1998 the population grew from 76 million to 270 million.
- \* The population of Florida in 1998 of 14.9 million was 28 times larger than in 1900. In 1900 60% of the population lived in rural areas compared to 25% living in rural areas in 1990.
- \* In 1900 there were 5.7 million farms encompassing 841 million acres. In 1998 there were 2.2 million farms encompassing 954 million acres.
- \* The average household in 1900 had 4.8 people and in 1998 the average household was 2.6 people.
- \* Between 1901 and 1910, 2 million immigrants came from Italy and 50,000 came from Mexico. Between 1991 and 1997, 1.8 million came from Mexico and 54,000 came from Italy.
- \* On December 17, 1903 the Wright brothers flew 120 feet in the first sustained powered airplane. In 1998 commercial airlines carried 614 million passengers.
- \* In 1900 there were 8,000 gasoline-fueled vehicles. The number reached 208 million in 1997.
- \* In 1900 the U.S. government had \$567 million in receipts. In 1999 the government took in \$1.7 trillion.



least consistent, science. All of these things make it easy for us to believe that there is either a grand conspiracy to misrepresent the risk of radiation exposure to the public, or that governmental agencies, researchers, and utility companies are running amok without regarding public health.

**The real reason that we seem to be getting misinformation is that there are no absolutes.**

There has been more research done on the effects of radiation exposure than for any other hazard known to man. We can predict very well what the outcome would be if we were exposed to an acute high dose of radiation (much greater than 25,000 mrem). This is why doctors can use radiation to kill cancerous cells so effectively. But when the dose is closer to the amounts that we get from background sources we cannot say that there is no risk, or even assign exact numbers to these risks. There is good evidence to support each of the premises that exposures at these levels are either beneficial to us, have no adverse effects, or are detrimental to our health. The overwhelming sentiment is that in order to be conservative, all doses of radiation above background should be avoided. This is the responsibility of those of us that use or prescribe radiation or radioactive materials, regulate these activities, and every individual that may be exposed to these sources.

**What is the source of this background radiation?**

There are about 65 naturally occurring radioisotopes. The most abundant isotopes in the oceans are; tritium (H-3) and carbon-14, these are produced by cosmic interactions. The

most abundant in the Earth's crust are potassium-40 (easily detectable amounts of this are present in our bodies), rubidium-87, thorium-232 and uranium-238. These are considered primordial and have been decaying ever since the Earth's formation. These numbers do not include releases from nuclear weapons testing or disasters such as Chornobyl or Three Mile Island. Even though these manmade sources of radioactivity were significant, they contribute less than one percent of the average individuals total dose from the natural sources.

**What can we do to avoid these exposures?**

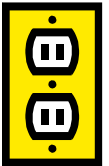
The bottom line is that we cannot keep our radiation dose at absolute zero. Our environment and even our own bodies are radioactive and have always been. Living in Florida we get an average exposure of about 306 mrem/year from natural sources. To put that number in perspective, the average occupational radiation worker on campus, receives an additional 3 mrem in a year (about one percent of background), and the dose received from that "standard chest x-ray" is about 10 mrem. Moving to an area that is at a higher elevation would give you a greater dose than this! The average person living in Colorado receives an additional 70 mrem/year from natural sources (totaling about 376 mrem/year), and there life expectancies are not significantly different than Floridian's.

Do not let the worry of radiation cause you undue concern or stress. If you are not sure what a posting is for or what the hazard is, have someone knowledgeable explain it, or find out what it is and do the research yourself. Make sure that you gain an understanding that makes you feel comfortable and allows you to adequately protect yourself.

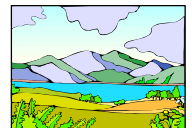
**ELECTRICAL DO'S & DON'TS**

Many electrical problems are common to the home or workplace. As you go about your daily routines think about these simple electrical do's & don'ts:

- C Don't ignore unusual conditions; flickering lights, blown fuses, open circuit breakers, broken switches.
  - Do have a qualified professional look at any electrical problems.
- C Don't overload outlets.
  - Do use outlets appropriately. Plug in only the proper number and type of appliances for the outlet. Consult the operating instructions for details.
- C Don't use extension cords in lieu of permanent wiring.
  - Do have wiring upgraded if necessary. Remember that the use of extension cords is not authorized for other than short periods of time.
- C Don't use any frayed or damaged cords.
  - Do inspect plugs and cords prior to use.
- C Don't talk on the telephone or use electrical appliances during an electrical storm.
  - Do wait until the storm passes to resume using electrical appliances.



Avoid many electrical problems by following the simple do's and don'ts!



---

---

## IN THE NEWS....

**Researchers at the Great Plains/Rocky Mountain Hazardous Substance Center** — a 14-institution consortium headquartered at Kansas State University and established to conduct research pertaining to hazardous substances produced through agriculture, mining, mineral processing and other activities — have begun a web-based, peer-reviewed scientific journal for professionals to publish research findings. The website for The Journal of Hazardous Substance Research is: <http://www.engg.ksu.edu/HSRC/JHSR>

**President Clinton named 12** of the nations most respected researchers to receive the 1999 National Medal of Science. This honors the discoveries and lifetime achievements of these scientists.

**An international group of scientific and public health experts**, meeting at the World Health Organization (WHO), in December recommended undertaking some further research on the smallpox virus before the two remaining collections of the virus are destroyed.

**Since the beginning of the AIDS epidemic**, 50 million individuals worldwide have been infected with HIV, of whom more than 33 million are still alive and over 16 million have died, according to a report issued by the World Health Organization (WHO).

**Workplace injury and illness rates** dropped for the sixth year in a row in 1998, the Bureau of Labor Statistics, U.S. Department of Labor reported December 16. Since 1973, occupational injury and illness rates have decreased 40 percent.

## DID YOU KNOW....

- 1900 Walter Reed traces yellow fever to the mosquito *Aedes aegypti*.
- 1900 Karl Landsteiner identified human blood groups A, B and O.
- 1906 Fredrick Hopkins proposes a new element of food, vitamins.
- 1906 Alois Alzheimer identifies the degenerative brain disorder that bears his name.
- 1913 Bela Schick perfects the test for diphtheria. Since active immunization the number of reported cases has dropped from 60,000 to only a few per year.
- 1940 Howard Florey and Ernst Chain isolate the mold penicillin.
- 1952 James Salk develops the dead-virus vaccine against polio.
- 1977 Smallpox is eradicated from the world.
- 1981 Acquired immune deficiency syndrome (AIDS) recognized for the first time.
- 1987 AZT is approved by the US Food and Drug Administration as a treatment of AIDS.



---

Environmental Health and Safety  
Florida State University  
Tallahassee, FL 32306-4154

**Non-Profit Organization**  
**U.S. Postage Paid**  
**Permit 55**